

FUNGI ISOLATED FROM THE FRUITS AND SEEDS OF SOME NORTHERN HARDWOOD TREES*

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Seed-borne fungi have been reported on or in the fruits and seeds of many horticultural and agronomic plants. There are relatively few reports, however, of fungi borne on the fruits and seeds of forest trees, especially of deciduous trees in North America. Ames (1952) isolated *Gleosporium ulmicolum* Miles from the fruits of rock elm (*Ulmus thomasi* Sarg.) and variegated English elm (*U. procera* cv. *argenteovariegata* West.). Shigo and Yelenosky (1963) isolated *Coniothyrium* sp., *Penicillium* spp., *Aspergillus* spp., *Alternaria* sp. and *Trichothecium roseum* Link ex Fr. from yellow birch (*Betula alleghaniensis* Britt.) seeds. In view of these limited reports it was decided to determine further the presence of seed-borne fungi in the fruits and seeds of some northern hardwood trees.

Fruits and seeds were collected from 4 yellow birch, 3 paper birch (*Betula papyrifera* Marsh.), 2 silver maple (*Acer saccharinum* L.), 2 red maple (*A. rubrum* L.), 3 sugar maple (*A. saccharum* Marsh.), and 3 white ash (*Fraxinus americana* L.) from New Hampshire and Massachusetts. The 17 collections were made during the fall of 1967 and the spring and summer of 1968 when the fruits and seeds were mature but still on the tree. All the collections except those from silver maple and red maple were air dried before isolations were made.

Fungi grew from most of the fruits and seeds. The percentage ranged from 93% of 1 yellow birch collection, to 13% of 1 paper birch collection. Several different fungi were isolated occasionally from the same fruit or seed. Fungi representing 30 genera were isolated (Table 1). *Alternaria tenuis* auct. sensu Wiltsh. and species of *Penicil-*

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lium and *Aspergillus* were isolated from all collections except for 1 from paper birch. *Coniothyrium* sp. was present in 15 collections; *Botrytis cinerea* Pers. ex Fr. in 12; and *Epicoccum purpurascens* Ehr., *Phomopsis* sp., and *Physalospora obtusa* (Schw.) Cke. in 9. *Fusarium* spp. was present in only 6 of the collections but in 1 yellow birch collection it was isolated from 93% of the 200 seeds. *Gleosporium* sp. was present in only the 2 silver maple collections where it was isolated from more than 20% of the fruits. Some of the remaining species of fungi were present in as many as one-half or more of the 17 collections but were rarely isolated from more than 5% of the 200 fruits or seeds from each collection. Several fungi did not sporulate on malt-yeast agar and were not identified.

A variety of fungi are able to invade the fruits and seeds of some northern hardwood tree species. The list presented here would undoubtedly be expanded if a greater number of trees were sampled. Most of the fungi are probably saprophytes on or in the dead tissues of the fruit or seed-coat. Some may be pathogens. Conditions favorable for the invasion of these fungi might reduce germination or weaken seedlings, making them vulnerable to environmental stresses.

LITERATURE CITED

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